

REMARKS

Favorable reconsideration in view of the previous amendment and following remarks is respectfully requested.

Claims 1 and 5-7 are pending. By this Amendment the title is amended, claims 2-4 are cancelled and claim 1 is amended. Support for the amendment to claim 1 can be found at least beginning at line 17 of page 7 in Applicants' as-filed specification.

The Office Action objects to the title. The title is amended to address the Examiner's concerns.

The Office Action rejects claims 1, 2, 6 and 7 under 35 U.S.C. §103(a) over Applicants' Background Art or U.S. Patent No. 6,320,268 to Lang et al. in view of JP 2001-102400; and rejects claims 3-5 under 35 U.S.C. §103(a) over Applicants' Background Art or Lang in view of JP 2001-102400 and further in view of U.S. Patent No. 3,581,163 to Eriksson. These rejections are respectfully traversed.

Applicants' independent claim 1 is directed to a pressure contact type rectifier comprising, a cap, a lead passing through the cap, a rectifying device having electrodes and a friction reducer provided on at least one face of the electrodes. As discussed in Applicants' as-filed specification beginning at the paragraph bridging pages 1 and 2, heat is generated during the operation of a rectifier due to electrical contact resistance at the contact base either between the lead terminal and the diode chip or between the diode chip and the stem. The heat raises the temperature of the lead terminal, the diode chip and the stem. At this moment stress concentration occurs due to friction at each contact base as a result of the difference of thermal expansion coefficient of each of the materials. As a result, electrical

conductivity failure at the contact base, either between the lead terminal and the diode chip or between the diode chip and the stem, may occur. In addition, burning of the diode chip due to the resistance increase accompanied by the electro-conductivity failure or breakage of the diode chip due to the stress may occur.

As disclosed in Applicants' as-filed specification in the paragraph beginning at line 13 of page 6, the friction reducers can relax stress concentration that has occurred due to friction. Due to moving or rotating of the microparticles of the evaporated carbon films that construct the friction reducers, strain on each contact face is relaxed. As a result even though operation may take place over an extended period, a pressure-contact type rectifier can be obtained in which burning of the diode chip 5 is reduced or prevented.

The Office Action recognizes that neither Applicants' disclosed Background Art nor Lang disclose a friction reducer. Applicants respectfully disagree with the Office Action's assertion that JP '400 overcomes the deficiencies of Applicants' Background Art or Lang. In particular, JP '400 does not disclose a friction reducer. Instead, JP '400 discloses a contact intermediate material including intermediate assemblies 5 which are formed from two or more kinds of particle members 5a, 5b from which a mean particle diameter differs. The first particle member 5a mainly reduces electrical resistance and the second particle member 5b mainly reduces thermal resistance. Neither of the particles are related to reducing frictional resistance and thus do not relate to the problem addressed by the features of claim 1, particularly when heat generated during the operation due to electrical resistance causes stress concentrations related to a difference of thermal expansion coefficient

of the materials. In JP '400, the particles are not provided on the face of the electrodes, nor are the particles formed of carbon microparticles.

The dependent claims are allowable for at least the reasons discussed above as well as for the individual features they recite.

The Eriksson reference does not overcome the deficiencies of Applicants' Background Art, Lang or JP '400 noted above.

Early and favorable action with respect to this application is respectfully requested.

Should the Examiner have any questions regarding this Amendment or the application in general, he is invited to contact the undersigned at the number provided below.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

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By: _____


Michael Britton
Registration No. 47260

P.O. Box 1404
Alexandria, VA 22313-1404
703 836 6620